

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Toshihiro MAKINO et al.

Date: January 9, 2002

Serial No.: 09/739,726

Group Art Unit: 2832

Filed: December 18, 2000

Examiner: L. Donovan

For: NONRECIPROCAL CIRCUIT DEVICE AND COMMUNICATION ...Asst. Commissioner for Patents  
Washington, D.C. 20231**AMENDMENT/SUBMISSION**

This is a response to the Office Action mailed October 9, 2001 in the above-identified application. Reconsideration of the application is respectfully requested.

**FEE CALCULATION**

Any additional fee required has been calculated as follows:

\_\_\_\_\_ If checked, "Small Entity" status is claimed.

NO. CLAIMS AFTER AMENDMENT	HIGHEST NO. PREVIOUSLY PAID FOR	EXTRA PRESENT	RATE	ADDIT. FEE
TOTAL	MINUS	* =	X (\$9 SE or \$18)	\$
INDEP.	MINUS	** =	X (\$42 SE or \$84)	\$
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			X (\$140 SE or \$280)	\$
* not less than 20 ** not less than 3				TOTAL \$

If any additional payment is required, a check which includes the calculated fee of \$\_\_\_\_\_ (OFGS Check No. \_\_\_\_\_) is attached.

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

## **CONTINGENT EXTENSION REQUEST**

If this communication is filed after the shortened statutory time period had elapsed and no separate Petition is enclosed, the Commissioner of Patents and Trademarks is petitioned, under 37 C.F.R. § 1.136(a), to extend the time for filing a response to the outstanding Office Action by the number of months which will avoid abandonment under 37 C.F.R. § 1.135. The fee under 37 C.F.R. § 1.17 should be charged to our Deposit Account No. 15-0700.

## **AMENDMENTS**

☒ If checked, amendment(s) to the specification and/or claims are submitted herewith.

### **1. Specification:**

Please delete the paragraph beginning at page, 13, line 21 to page 14, line 11 and replace such paragraph pursuant to 37 C.F.R. § 1.121(b)(ii) with the “clean” version attached hereto as Appendix A. Entry is respectfully requested. A version with markings to show the changes made pursuant to 37 C.F.R. § 1.121(b)(iii) is attached hereto as Appendix B.

### **2. Claims:**

Please cancel claims 2 and 5 without prejudice.

Please amend claims 1, 3, 4, 6 and 7 pursuant to 37 C.F.R. § 1.121(c)(i) as set forth in the “clean” version attached hereto as Appendix A. Entry is respectfully requested. A version with markings to show the changes made pursuant to 37 C.F.R. § 1.121(c)(ii) is attached hereto as Appendix B.

## REMARKS/ARGUMENT

The Examiner stated that the certified copy of the priority document was not received by the Patent Office. On the contrary, it was received on January 16, 2001, as shown by the attached copy of the receipt postcard stamped by the Patent Office. The Patent Office is therefore requested to acknowledge receipt of the priority document.

The Examiner required Figs. 12-15 to be labeled as prior art. Fig. 12 is not prior art. See page 6. Drawing sheets containing proposed amendments to Figs. 13-15 are enclosed.

### Claim Objections and 35 U.S.C. 112, 2<sup>nd</sup> paragraph Rejections

The term "adapted to" in claim 1 has been changed to "arranged to." This amendment does not narrow the claim, but merely clarifies it, as clearly supported by the specification and drawings.

The Examiner questioned the statement in claim 1 that the metal case "has a gap." The Examiner also said that the gap is formed by the case. The Examiner objections are respectfully traversed. As shown in Figs. 3 and 4, for example, the metal case has a gap 45 and the Examiner is correct that the gap is formed by the case. Page 10, lines 4-6 states that "The top ends of the two arms 42a of the metal case 42 are opposed to each other while leaving a gap 45 having a predetermined distance therebetween." No amendment is seen to be necessary.

The Examiner questioned "a loop current flowing around the ferrite member" in claim 1. The Examiner's objections are respectfully traversed. No amendment is seen to be necessary. This term is defined at page 10, lines 9-12, and in other parts of the specification.

The Examiner questioned the meaning of "rotation-symmetrical" in claim 4. The claim is being amended to state "180° rotation-symmetrical." This means that if the metal case is rotated 180 degrees about the axis of the permanent magnet, it will have the same appearance as before the rotation. This amendment does not narrow the claim, but merely clarifies it, as clearly supported by the specification and drawings.

In view of the foregoing, the claim objections and formal rejections are requested to be withdrawn.

### Prior Art Rejections

Claims 1, 2, 4 and 5 were rejected as being unpatentable over the admitted prior art (APA) in view of JP'812. Claim 1 is being amended to recite "a gap containing a solid insulating material." See Fig. 12 (insulating material 70) and the accompanying text. Claims 2 and 5 are being canceled. Neither the APA nor the JP'812 reference discloses this feature. Therefore, allowance of claims 1, 3, 4, 6 and 7 is requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as Express Mail #EL157403096US in an envelope addressed to: U.S. Patent and Trademark, P.O. Box 2327, Arlington, VA 22202, on January 9, 2002.:

~~Dorothy Jenkins~~

Name of person mailing correspondence

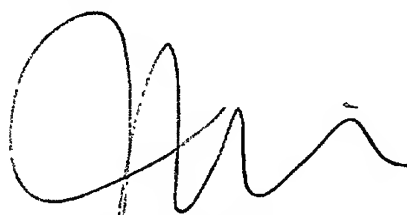
*Cheryl DesVignes*

Signature

January 9, 2002

Date of Signature

Respectfully submitted,



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**APPENDIX A**  
**“CLEAN” VERSION OF EACH PARAGRAPH/SECTION/CLAIM**  
**37 C.F.R. § 1.121(b)(ii) AND (c)(i)**

**SPECIFICATION:**

**Paragraph at page 13, line 21 to page 14, line 11:**

The nonreciprocal circuit device and the communication apparatus according to the present invention are not restricted to the above embodiments. Various modifications and changes can be made without departing the scope and spirit of the invention. For example, in the isolator 41 of the first embodiment, it may not be necessary to dispose the gap 45 at the center of the top surface of the metal case 42. The gap 45 may be disposed in a position deviated from the center as shown in Figs. 11A and 11B. In addition, as shown in Fig. 12, in a modification of the conventional isolator 11 (compare with Fig. 15), one of the edges of parts at which the upper case unit 15 and the lower case unit 12 are close to each other may be bonded with an insulating material 70 instead of a solder 18 to form a gap 71. When the edges of both parts are bonded with the insulating material, the direct current magnetic field of the central electrode assembly 14 is excessively reduced.

**CLAIMS:**

**Claim 1 (amended):** A nonreciprocal circuit device comprising:

a permanent magnet;

a ferrite member which is arranged to receive a direct current magnetic field applied by the permanent magnet, said ferrite member including a plurality of central electrodes; and

a metal case containing the permanent magnet, the ferrite member, and the plurality of central electrodes;

wherein the metal case has a gap containing a solid insulating material for cutting off a loop current flowing around the ferrite member and the plurality of central electrodes.

**Claim 4 (amended):** A nonreciprocal circuit device according to Claim 1, wherein the metal case is 180° rotation-symmetrical with respect to the axis of the permanent magnet.

**APPENDIX B**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**37 C.F.R. § 1.121(b)(iii) AND (c)(ii)**

**SPECIFICATION:**

**Paragraph at page 13, line 21 to page 14, line 11:**

The nonreciprocal circuit device and the communication apparatus according to the present invention are not restricted to the above embodiments. Various modifications and changes can be made without departing the scope and spirit of the invention. For example, in the isolator 41 of the first embodiment, it may not be necessary to dispose the gap 45 at the center of the top surface of the metal case 42. The gap 45 may be disposed in a position deviated from the center as shown in Figs. 11A and 11B. In addition, as shown in Fig. 12, in a modification of the conventional isolator 11 (compare with Fig. 15), one of the edges of parts at which the upper case unit 15 and the lower case unit 12 are close to each other may be bonded with an insulating material 70 instead of a solder 18 to form a gap 71. When the edges of both parts are bonded with the insulating material, the direct current magnetic field of the central electrode assembly 14 is excessively reduced.

**CLAIMS:**

**Claim 1 (amended):** A nonreciprocal circuit device comprising:

a permanent magnet;

a ferrite member which is arranged [adapted] to receive a direct current magnetic field applied by the permanent magnet, said ferrite member including a plurality of central electrodes; and

a metal case containing the permanent magnet, the ferrite member, and the plurality of central electrodes;

wherein the metal case has a gap containing a solid insulating material for cutting off a loop current flowing around the ferrite member and the plurality of central electrodes.

**Claim 4 (amended):** A nonreciprocal circuit device according to Claim 1, wherein the metal case is 180° rotation-symmetricall with respect to the axis of the permanent magnet.

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Serial No. 67/739,726 Filing Date 12/13/00 OEFS File No. 67-127  
Title NONRECIPROCAL CIRCUIT DEVICE & METHOD  
First Inventor TOSHIOHITO MAKINO ET AL. Date 1/16/01  
The PTO has received: Last Due Date: \_\_\_\_\_

- ☐ Patent Application of \_\_\_\_\_  
Pages (including claims & abstract)  
☐ Declaration or ☐ Designation Sheet  
☐ Drawings \_\_\_\_\_ Sheet(s)/Figs. \_\_\_\_\_ to \_\_\_\_\_  
☒ Priority Document  
☐ Small Entity Declaration  
☐ Assignment & Conveyance Cover Sheet  
☐ Information Disclosure Statement  
☐ PTO-1449  
☐ Amendment  
☐ Affidavit or Declaration  
☐ \_\_\_\_\_

- ☐ TM Application ☐ ITU Basis  
☐ Statement of Use  
☐ Extension of Time  
☐ Notice of Appeal  
☐ Brief  
☐ Petition  
☐ Status Request  
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